MPGD Tracker for EIC
## Simulation progress at CEA-Saclay

**Qinhua Huang for DPhN and DEDIP**

EIC YR – Tracking WG

9 April 2020

- Current focus on the barrel tracker:
    - Curved MPGD tiles with low material budget
    - Micromegas technology is being used in CLAS12
- A barrel tracker has been implemented with **Fun4All**
    - Realistic materials taken from CLAS12 BMT (missing only some carbon fiber structure elements)
    - Parametric implementation makes it easy to study different configurations: number of layers, layer radial positions, tile width
    - Configurations can be easily exported into gdml format
    - First implementation of φ/Z strips hit combination for fast tracking

$X/X_0 \sim 0.3\%$ per layer

Material budget

6 equally spaced 2D layers

6 double layers Z/φ

2
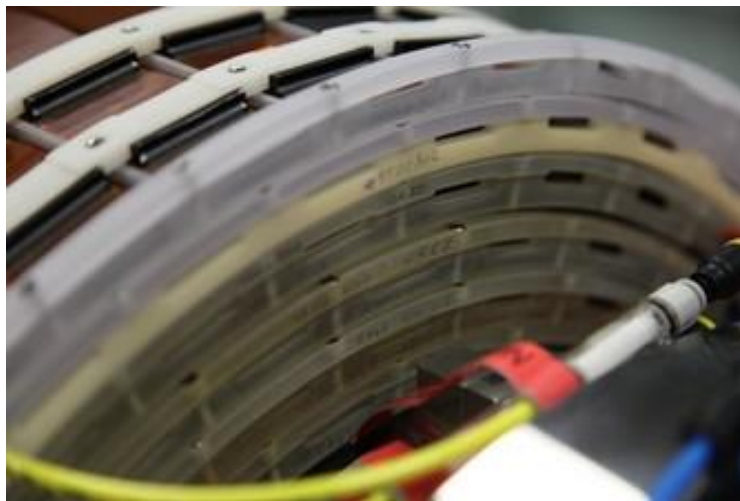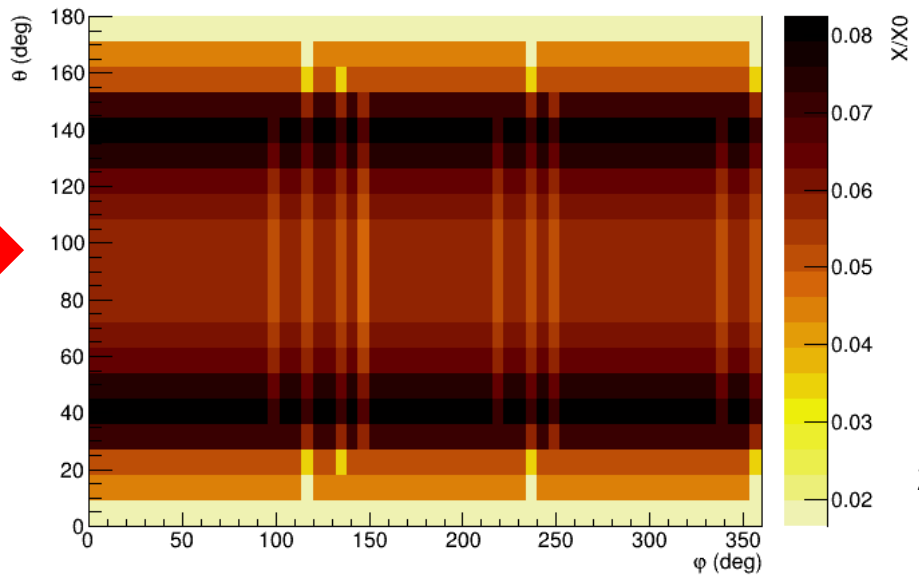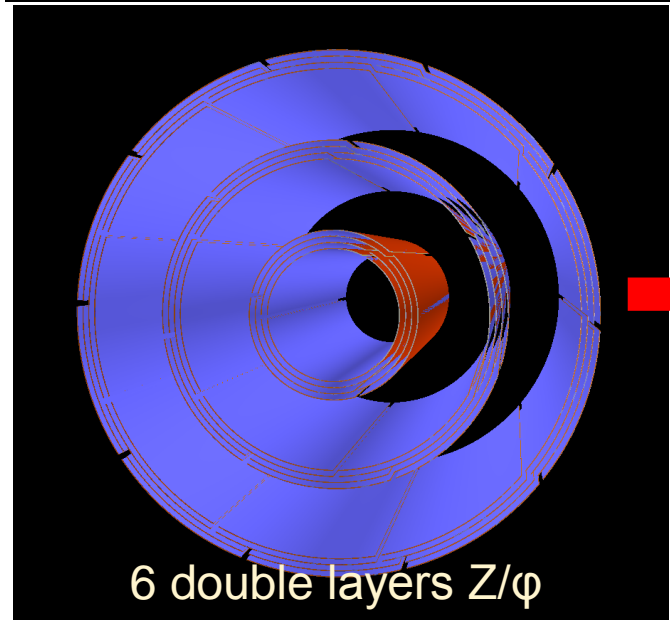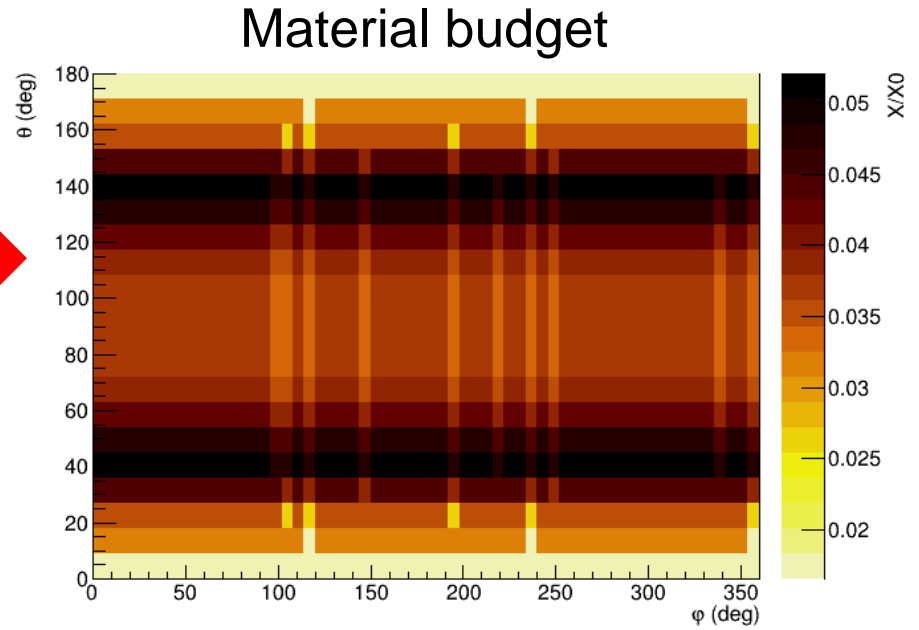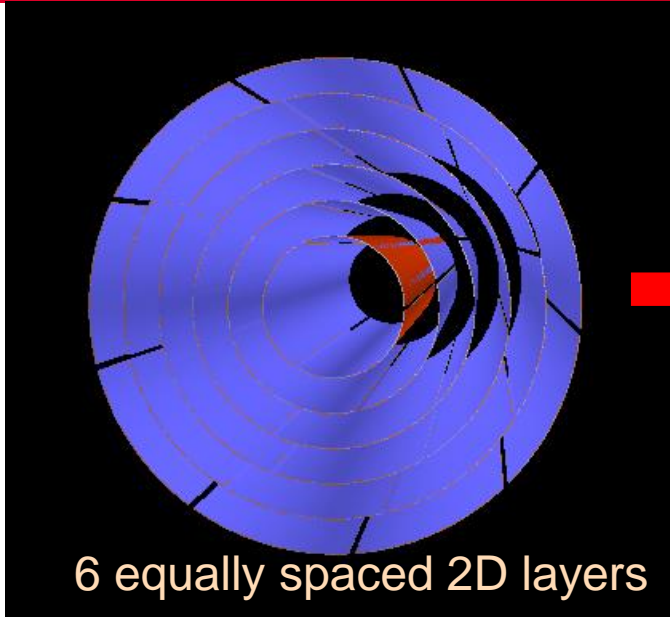
- In the next step, the tracker will be integrated into ePhenix and replace the TPC
- We will continue the study to answer questions such as:
  - Number of layers and spacing between layers
  - Readout schemes: 2D vs 1D, φ/Z vs u/v 1D readout
  - Material budget
  - Momentum resolution
- So far the tracker simulation should be independent of gas detector technology (MM, µRWELL, others)
  - Many problems encountered are very similar
  - Sharing between groups can make life easier